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THE IMPACT OF ESG SCORES AND NON-FINANCIAL REPORTING ON THE FINANCIAL PERFORMANCE OF PUBLIC COMPANIES IN THE EU

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Abstract

Sustainability has grown in popularity over the past few years due to the environmental and social challenges we are currently facing. With the raised awareness regarding sustainability and the new trend of sustainable investing, stakeholders and investors incorporate sustainability in their investment strategies. Company performance is now not only measured by financial performance but sometimes more importantly, non-financial performance. The European Commission introduced the law on non-financial reporting in an attempt to increase transparency and aid interested parties in evaluating companies not only based on their financial performance. Since companies are now required to disclose information about their non-financial activities, it is easier to actually see what companies do to contribute to a sustainable future. One of the measurements used to value non-financial performance is the ESG (Environmental, Social, and Governance) score. This paper investigates the relationship between non-financial reporting and ESG scores, and the financial performance of public companies in the EU. To evaluate this, two difference-in-differences regression models were performed on a sample of 3158 public companies in the EU from the Thomson Reuters Eikon database. Using average stock prices as a measurement of financial performance, this variable was regressed against reporting vs not reporting on non-financial information as well as high vs low ESG scores. The results obtained conclude a significantly positive relationship between average stock prices and the independent variables of interest. Based on these results, this paper can conclude a positive relationship between reporting non-financial information and ESG scores, and financial performance.

Keywords: Sustainability, Sustainable Finance, ESG, Financial Performance, Non-financial reporting

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1 Introduction

1.1 Background

Sustainability is a concept that over the past years have grown tremendously in popularity on the world agenda. The increased light shed upon topics such as global warming, overpopulation, lack of resources, and rising greenhouse gas emissions have urged the importance of sustainable development. This responsibility falls not only on society but even more so on companies as they have a great responsibility in contributing to the sustainable development of their ecosystems. As a result of the pressing concerns faced in terms of environmental and societal threats, various regulations and initiatives on sustainability have been developed both on national and international levels.

The European Commission (2019) defines sustainable development as "development that meets the needs of current generations without compromising the ability of future generations to meet theirs". One of the strategies to achieve this was the signing of the Paris Agreement in December 2015 by more than 190 parties. This global framework aims to mitigate climate change by limiting global emissions and as a result keep the increase in global temperature below 2 degrees Celsius (UN 2015). The framework further requires each party to establish and adopt national climate action plans in accordance with the agreement goals (UN 2015).

In 2006, the UN founded the Principles for Responsible Investments (PRI) to further actualize their work towards a sustainable future. The purpose of this framework is to create and promote sustainable markets by engaging investors to act responsibly (PRI Association, 2020). According to the PRI, there are three main drivers of responsible investing: materiality, market demand, and regulation. These represent how environmental, social, and governance (ESG) affects return and risk, the transparency demands from clients and beneficiaries, and existing guidelines from regulators saying that ESG factors should be part of investors' work.

Their definition of responsible investments is “a strategy and practice to incorporate ESG factors in investment decisions and active ownership”, something that does not necessarily have to interfere with financial performance (PRI Association, 2020).

The process towards a more sustainable future was however rooted a long time ago. 20 years ago, the United Nations (UN) founded the world’s largest corporate sustainability initiative called the United Nations Global Compact (UNGC). The aim of this initiative is to create a movement of sustainable companies and stakeholders worldwide to create a better world for the generations to come (UNGC n.d. a). Their strategy to encourage companies to conduct responsible business is based on ten principles on human rights, labour, the environment, and anti-corruption (UNGC n.d. a). These principles have laid the foundation for the 17 UN Sustainable Development Goals (SDGs) that present a 15-year plan to end poverty, eradicate hunger, fight injustice and inequality etc. by 2030 (UNGC n.d. b). The 2030 Agenda involves hard work and massive efforts from governments, businesses, and citizens, where businesses play the most important role. This puts further pressure on businesses to understand their role in society and what they can do to contribute to sustainable development.

Companies have a large effect on society, not only in terms of the products and services or jobs they provide, but also in terms of human rights and the environment. Because of this, they are expected to understand their impact on society and the environment, in order to mitigate any negative impacts both within and beyond their own supply chain. This responsibility is commonly referred to as Corporate Social Responsibility (CSR) and is quantified through ESG (Environmental, Social, Governance) scores.

For the past 40 years, European countries have stood at the forefront of sustainability in terms of environmental standards and climate actions (European Commission 2019). It was however not until 20 years ago, that the European Council encouraged companies to have a strategy for social responsibility regarding issues such as equal opportunities and sustainable development

(European Commission 2001). This became the start of the emergence of CSR within the EU, resulting in the implementation of various directives to encourage governments and companies to further adopt sustainable actions into their businesses, such as the European Green Deal (European Commission, n.d. a). The most recent result of this was seen in 2018, when the law on non-financial reporting for large companies came into effect.

1.2 Problem Discussion

With the growing threats to the environment and society that are present today, sustainability and environmental awareness have become of primary interest to the public. This puts pressure on companies and organisations, but also on governments, to understand and implement sustainability into business. While some companies have already realized the seriousness of the issue and voluntarily incorporate sustainability into their business practices, other companies have now been forced to do so with the EU-law on non-financial reporting (European Parliament & Council, 2014). As mentioned previously, the aim of this law is to aid the public and other interested parties in evaluating companies not only based on financial performance. Since companies are now required to disclose information about their non-financial activities, it is easier to see what companies do to contribute to a sustainable future.

The pressure on companies to become more sustainable is no longer only of interest to policymakers and the public, but also to investors. With frameworks such as the PRI, investors are also encouraged to engage in sustainability through responsible investing (PRI, n.d.). By incorporating sustainability into their investment strategies, investors are able to encourage companies to focus more on non-financial performance to remain attractive investments. With company ratings such as ESG scores, which rate the environmental, social, and governance activities within firms, investors are able to screen and evaluate companies on more than financial performance. Since firm performance includes both financial and non-financial aspects, it is clear that ESG activities has a relationship with firm performance.

Despite European countries being at the forefront of sustainable development, not many companies have been reporting on their non-financial information (European Parliament & Council, 2013). Various directives and guidelines have previously been implemented by the EU without much effect, hence the introduction of the EU law on non-financial reporting (European Commission, 2013). The law aims to increase transparency and make companies obliged to include non-financial issues into business practices (European Commission, n.d. b). While previous studies have aimed to investigate the relationship between CSR performance and various aspects of financial performance, none have further investigated the impacts of the EU-law on financial performance of those companies obliged to comply with the law.

The aim of this paper is to take a deeper look at the relationship between non-financial performance and financial performance for large public EU corporations. Through looking at the EU law on non-financial reporting, this paper aims to investigate whether the introduction of the law has had an impact on the financial performance of large public EU firms.

In order to perform this investigation, the paper will firstly examine the average stock price of firms that have reported and have not reported, over a time period that covers the implementation of the EU law to answer the following research question:

RQ1: Is there a visible change in financial performance for public EU companies as a result of the implementation of the EU-law on non-financial reporting?

Secondly, this paper will use a measurement of CSR, namely the ESG score, and examine how this is related to the financial performance of EU firms. To accomplish this, the paper aims to answer the following research question:

RQ2: Is there a significant relationship between ESG reporting and ESG scores, and the financial performance of public EU companies after the introduction of the law on non-financial reporting?

The results obtained from this study will present whether the EU-law on financial reporting has had an effect on firms' financial performance, through a change in average stock prices, either positive or negative, from the time the law was implemented. In order for this to be true, those companies that have reported on ESG issues in accordance with the law should experience a higher average stock prices from the implementation of the law, and vice versa. Furthermore, those companies that have received above median ESG scores should experience higher average stock prices compared to those that received below median scores.

2 Literature Review

2.1 Research Approach

The literature research has primarily been conducted using Google Scholar and ResearchGate to search for previous studies relating to CSR performance and its connection to financial performance. Extensive research was also done on sustainable finance in order to gain a better understanding of the sustainable arena and the challenges that companies face in the future. Previous student papers were also researched in order to get a clearer picture of what has already been done on the topic of sustainability and what this paper could bring to the field.

Keywords used in literature research: Sustainable finance, ESG score, Sustainability, Sustainable Development, Green bonds, CSR, Financial Performance.

2.2 Previous Studies

There have been several previous studies done on the relationship between CSR activities and various aspects of firm performance. The results from the previous studies are however of

variety and display inconsistencies which according to McWilliams and Siegel (2000) are due to misspecifications in the regression model or the fail to control for R&D. In their paper they construct a regression model that controls for R&D and find that the relationship between CSR and financial performance is neutral. Thus, they cannot conclude that CSR has a positive effect on the financial performance of firms.

Lo & Sheu (2007) did a study where they looked at whether corporate sustainability increases value for business. They sampled 148 large non-financial US firms during 1999-2002 and compared corporate sustainability with market value to see if a significant relationship could be found. Using Tobin's q as a representative of market value, they found a significantly positive relationship with corporate sustainability. They further concluded that sustainability activities can help increase firm value and that firms who incorporate sustainability into their corporate strategy are more likely to receive a higher valuation in financial markets.

To gain a different perspective on the value of CSR to firm performance, Albuquerque, Koskinen & Zhang (2018) investigated the relationship between CSR and firm risk. They created a model based on CSR and product differentiation which shows that the incorporation of CSR decreases systematic risk and increases firm value, and that this becomes stronger with higher product differentiation. Another study that examines a more specific area within firm performance was done by El Ghoul et al. (2011) using a large sample of US firms. The paper examines the effect of CSR on cost of equity and the results show that firms with high CSR scores experience a lower cost of equity compared to companies with low CSR scores. The paper further shows that firms in non-sustainable industries such as tobacco and nuclear power exhibit a higher cost of equity compared to other industries.

Other previous studies have focused on ESG scores and firm performance as an investigative approach. Three interesting master theses on Swedish and Nordic companies were written by Afrooz & Kruusman (2019), Andersson & Rönning (2020) and Ahklo & Lind (2019). Afrooz

& Kruusman (2019) looked at the ESG scores of 105 Nordic companies and compared these to stock price jumps during 2008-2017. The results show no significant relationship between stock prices jumps and the overall ESG score, but a significant relationship with the Social and Governance scores. Andersson & Rönning (2020) performed a similar study with 44 Swedish companies during 2010-2018 and investigated the relationship between ESG scores and stock valuations (price-to-book ratio, price-to-earnings ratio, price-to-sales ratio, EV/EBIT, and EV/S). The results show a positive relationship between ESG and stock valuation in those cases where the ESG score variable is significant. Using ESG pillar scores, Environmental had a negative effect while Social and Governance had positive effects on stock valuation. Lastly, Ahklo & Lind (2019) looked at the relationship between ESG scores and financial performance, using a sample of 80 Nordic companies from 2015 to 2018. The paper used Return on Assets (ROA), Tobin's q, and yearly stock returns as measurements of financial performance and regressed these against ESG scores. Their results concluded no significant relationship between ESG scores and financial performance.

Since there is a great amount of previous empirical papers on the subject and the results vary, it is hard to make generalized conclusions. To help overcome this, Friede, Busch, and Bassen (2015) made an aggregate paper with results from about 2200 individual empirical studies. The aim was to gather data from all previous studies in order to compare results and make generalized conclusions regarding the relationship between ESG and corporate financial performance (CFP). The results from their study shows that about 90% of all previous studies found a non-negative relationship between ESG and CFP. Amongst these studies, the majority showed a positive relationship and that the effect on CFP by ESG appears stable over time.

3 Theoretical Framework

3.1 Corporate Social Responsibility

Corporate Social Responsibility is a concept that dates back to before the early 1900s. The more modern terms and concepts of CSR are however formed around the 1950s which became the start of the "modern era of social responsibility" (Carroll, 1999). At this time, CSR was often referred to as social responsibility rather than corporate social responsibility. Many books and papers have been written on the concept since, with Social Responsibilities of the Businessman by Bowen (1953) being one of the initial ones. He understood the impact of companies on society and argued that the actions of firms affect the lives of citizens in various ways. He also stated that businessmen have an obligation to act in a way that is desirable to society. Even at this time, companies understood their impact and the importance of their actions. In his book, Bowen mentions a survey made by Fortune magazine where 93.5% of the respondents agreed that they are responsible for the consequences of their actions beyond the results of their financial statements.

A modern definition of the more commonly used term corporate social responsibility by the European Commission (2011) states that it is "the responsibility of enterprises for their impact on society". They argue that this can and should be done by companies through following the law, and integrating various social, environmental, ethical aspects into their business strategy. This is similar to the definition presented by Bowen (1953) but even though the definition somewhat speaks for itself, the concept requires that companies include non-financial variables into their businesses. There has been a shift in terms of value from strictly financial towards incorporating other aspects of business to capture value. In contrast to traditional finance and investing, a new form of investment that considers social and environmental aspects is gaining momentum in the financial arena (Lo & Sheu, 2007).

Corporate sustainability is expected to be an increasingly important subject in the future due to the environment and social challenges that are present today (Steurer et al., 2012). It also serves as a benchmark for companies' ability to operate in the future (ISO, 2018). Due to the raised awareness and increased engagement regarding sustainability, many investors now incorporate sustainability in their investment strategies. Previously, expected return and risk were the major determinants of a portfolio, whereas other aspects are now also taken into consideration (Gates, 2013). Companies' contributions to the welfare of society and the environment have become a vital part in measuring their overall performance in the eyes of stakeholders (ISO, 2018). This new area of finance is referred to as sustainable finance where not only the financial performance, but also the non-financial performance, are what determines the investment strategy of investors (Gates, 2013).

In accordance with this new trend, companies are thought to maximise shared value by adopting a long-term CSR strategy (European Commission, 2011). According to ISO (2018), the goal for companies incorporating CSR into their business model should be to contribute as much as possible to sustainable development. This involves developing new processes for products and services, as well as improving working conditions to the benefit of their value chain and society (European Commission, 2011). Furthermore, addressing CSR issues should be in the interest of companies as it not only maximizes shared value but brings benefits to the companies themselves. In their 2008 report on European competitiveness, the European Commission presents evidence of a positive relationship between CSR and competitiveness (European Commission, 2008). They also state that a strategic approach to CSR can increase benefits in terms of risk management, access to capital etc. Since CSR involves a collaboration between companies and society, companies are able to better analyse and predict changes in demand and expectations. This way, they can more easily adapt and create new opportunities for future continued growth (European Commission, 2011).

3.2 Measuring CSR

According to the RobecoSAM Country Sustainability Ranking (Robeco, 2020), 15 out of the top 20 countries are European, which corresponds to the high sustainable development in the region. Moreover, Nasdaq Nordic was the first stock exchange to launch a sustainable bonds market (Nasdaq, 2019) where securities are categorized into sustainable bonds, green bonds, and social bonds depending on the characteristics of the projects they finance (Nasdaq, n.d.).

In order to quantify the impact of CSR and translate it into numerical value, several measurements have been developed by various agencies. The Morningstar Sustainability Rating, Dow Jones Sustainability Index, and Thomson Reuters Corporate Responsibility Ratings are examples of various ratings that evaluate the sustainability of companies and funds. Morningstar provide scores and information on mutual funds (Morningstar, 2019) while Dow Jones and Thomson Reuters provide scores and data on specific companies (S&P Global, n.d.; Thomson Reuters, 2017). These ratings are based on environmental, social, and governance (ESG) performance scores of the companies/funds they evaluate and provide additional tools to investors in terms of sustainable investment.

3.2.1 ESG Sustainability Score

The ESG sustainability score is based on the environmental, social, and governance aspects of performance. It is used by investors and other stakeholders to investigate companies from a non-financial perspective and asses their impact on sustainability.

Although there are a number of different factors that can be derived under the three ESG pillars, the Thomson Reuters Eikon ESG score used in this paper has selected 10 factors made up of more than 70 key performance indicators. Each factor has been assigned a weight depending on the number of measures it is made up of (see Figure 1).

3.3 EU-law on Reporting of Non-financial Information

The 2014/95/EU directive, also known as the non-financial reporting directive, was accepted by the European Parliament and the Council in 2014 and lays the foundation for the EU law. The directive states that large EU companies are to present information on topics such as environmental, social, and HR related issues, and diversity in their financial reports (European Parliament & Council, 2014). Due to the nature of EU-directives, member states are not obliged to incorporate this into national legislation, but rather see them as guidelines (European Commission, n.d. c). Therefore, national legislation determined if companies were required to comply with the directive and the European Parliament and Council could thus not control whether more companies were to disclose their non-financial information.

To further push the sustainability agenda, the previous 2014/95/EU directive was transformed into EU law stating that all large public companies in the EU member states must disclose information on non-financial activities (European Commission, n.d. b). In this context, large companies refer to all companies with more than 500 employees, amounting to around 6000 businesses and groups (European Commission, n.d. b). Unlike EU-directives, member states are obliged to implement EU laws into national legislation but are allowed to make changes as long as the minimum criteria remain. According to the Swedish Annual Reports Act (Årsredovisninslag 1995:1554, ch.6-par.10), the EU law applies to all companies with more than 250 employees, a balance sheet of more than 175 million SEK, or net sales of more than 350 million SEK. Denmark also require all large firms to follow the EU law (Årsregnskabsloven, par.99a). Large corporations are those that during two following financial years having exceeded two of the following limits: a balance sheet of more than 156 million DKK, net sales of more than 313 million DKK, or more than 250 employees (Årsregnskabsloven, par.7).

The law refers to the 2014 non-financial reporting directive for the rules on disclosing non-financial information. The directive requires that all companies present information on their business policies that relate to protection of the environment, social responsibility, work environment, human rights, the combat against corruption and bribery, and diversity on c-suite levels of management. While the directive clearly states what is to be disclosed, it provides more flexibility in terms of how the information is disclosed. Companies are free to use international, European, or national guidelines to form their statements, depending on what best suits their corporate characteristics (European Parliament & Council, 2014).

As with the 2014 directive, one of the purposes of this law is to increase transparency regarding companies' business practices in order to facilitate better investigations and valuations of companies. The aim of the law is to aid investors, consumers, policy makers and other stakeholders to evaluate companies from perspectives beyond financial performance. It is supposed to encourage companies to adopt a more responsible approach to business where sustainability is used as a guiding tool to identify risks and business opportunities. Apart from easing the valuation of companies, the increased transparency is according to the European Commission (2017) expected to improve company resilience as well as financial and non-financial performance. They further predict that this will result in more robust growth, decrease unemployment, and increase the trust between companies and their various stakeholders. They also argue that disclosure of non-financial information is key to enable a more sustainable finance climate within the European Union.

3.3.1 The Effect of the EU-law on EU Companies

The introduction of the EU-law will not have any major effect on the large companies that were already reporting on their non-financial activities. The law affects around 6000 companies from which many are already disclosing non-financial information. According to the European Commission (2013), approximately 2500 large EU companies report on their

non-financial activities. The greatest impact will therefore be seen for those companies that have not previously disclosed non-financial information but are now obliged to do so. This could result in a levelling of the playing field for large corporations within the EU and bring about a serious change in corporate responsibility.

The law, unlike the previous directive, will be able to put actual pressure on companies to work more on CSR activities as this is scientifically proven to have major benefits for companies. The transparency that comes with disclosing non-financial information also brings various positive impacts to EU companies. The European Commission (2013) argues that the previous lack in transparency has a direct impact on non-financial performance. With the increased transparency required by the law, non-financial aspects of business are measured and can be properly managed by executives. This argument is also presented by Porter & Kramer (2007) who believe that if non-financial information is not properly disclosed and communicated, boards and shareholders cannot properly manage business risks.

In terms of financial benefits that companies may reap from incorporating non-financial issues into their business strategy, there are multiple aspects to look at. Research shows that companies with high ESG ratings have a tendency of outperforming their competitors financially, especially in the medium to long term (3-10 years). The areas where companies outperform their competitors are for example lower cost of debt/equity and a competitive advantage in attracting and retaining talent. (Ioannou & Serafeim, 2013; Bauer & Hann, 2010)

4 Data

4.1 Sample Description

To perform this study, the sample consists of public companies in the EU. Partly since the EU has been on top of sustainable development for the past decades (European Commission 2019), but primarily since these are the ones affected by the EU-law.

Since the EU-law requires reporting from companies with more than 500 employees, these have been selected as the main sample group for the study. Even though there are differences in company size requirements between the EU law and national legislation, the paper was not able to take this into consideration due to the restricted time frame. Hence, the sampling of companies was solely based on the 500-employee requirement presented by the European Commission with the introduction of the law.

The Thomson Reuters Eikon database has been used as the primary source of data and information in order to maintain consistency in the sample and the observations. The reasoning behind choosing this database is because it is easily accessible for students through university libraries without any required fees.

The company selection process consisted of a screening of all public companies in the EU available on the database. All companies with 0 employees were excluded in order to remove holding and/or shell companies that may be present.

The Thomson Reuters Eikon database has a register of 3220 public companies in the EU. Out of these, 1774 companies have 500 or more companies and therefore belong to the primary sample group, meaning those companies that were affected by the law. The remaining companies with less than 500 employees belong to the reference group used for comparison. The data was then collected from the Thomson Reuters DataStream using the company codes retrieved from Eikon. After filtering out any missing information and removing extreme outliers, 3158 companies were selected in the final sample. The companies have then been separated into groups depending on various criteria, see Table 1.

The timeframe chosen for this sample is 2015-2019 as this both captures some time prior to the law as well as the results of the implementation. The data has been collected both on annual and daily bases depending on the purpose and use.

4.2 Variables

The variable used to represent financial performance is daily stock prices during the time period January 2015-December 2019 for each company. After using the natural logarithm to remove any large size differences between the companies, daily averages were calculated for the company groups used in each regression. The daily averages were then normalized to get a concentration around the first of January 2018 when the law was implemented.

The number of employees determines which companies were affected by the law and which were not using a 500-employee threshold. A dummy variable was created to separate the companies, with 1 being ≥500 employees and 0 being <500 employees. The number of employees is measured annually and the 2018 value was selected as the representative figure for each company since this is what determined whether the companies had to report.

The ESG score shows the ESG rating given to those companies that have reported properly in accordance with the law. This data was used to create two separate dummy variables showing whether or not the company has reported and whether they have received a high or low ESG score for their CSR performance. Since ESG scores are only given to those companies that have properly complied with the law, it can be interpreted that these companies were incentivized to do so. The dummy variable separates these companies through 1 being that the company has reported and 0 being that they have not reported. The second dummy variable focuses solely on those companies that have reported and looks at whether they received a high or low ESG score, with 1 being a high score and 0 being a low score.

To determine the time period for which the law has been implemented, a time dummy variable is generated that takes on the value of 1 from the beginning of 2018 when the EU law came into effect. The time period before this takes on the value of 0.

A summary of all variables can be found in Table 2.

5 Empirical Analysis

5.1 Methodology

In order to answer the research questions, a quantitative research method has been chosen as this better serves the purpose and style of the paper and is thought to better capture the results.

The paper first used a Regression Discontinuity Design (RDD) with the hope that this would capture a discontinuity in financial performance at the threshold of 500 employees. The RDD looked at the change in financial performance at the threshold of 500 employees through two regression models and dummy variables for having ≥500 employees and reporting on ESG. However, there was no visible discontinuity as a result of the law at the threshold of 500 employees, mainly due to the disproportionality of companies around 500 employees. Since the implementation of the law did not result in all selected companies to report, the RDD method was not appropriate to test the effect of ESG and the law on financial performance. In order to better investigate and answer the research questions, another method was chosen.

Since the EU law requires the disclosure of non-financial information for all companies with at least 500 employees from the start of 2018, this paper instead uses a Difference-in-Differences regression method (DID). The reason for using this method is since it is able to observe the effect of a policy or law at a certain time point for two separate sample groups. The paper uses Stata to estimate regressions and Microsoft Excel to plot graphs.

The DID method measures the difference in average gain between two groups through exposing only one of the groups to a treatment (the policy, law or similar) after a certain point in time and not exposing the other group. The method assumes that the two groups would have followed a similar trend in the absence of the treatment, based on the trends before the introduction of the treatment. Hence, any change in the trend around the introduction of the

reform must be due to the reform and not some other variable. This method also removes biases in the second time period through the interaction variable between time and ESG reporting/scores. The general model used in the DID method is written as follows:

$$y = \beta_0 + \beta_1 d1 + \beta_2 d2 + \delta_0 d2 + \delta_1 d3 * dB + \delta_2 d2 * dB + u \quad (1)$$

y = dependent variable, normalized logarithmic average daily stock prices

d1 & d2 = dummy variables that separate the company groups

d3 = time dummy variable that determines the implementation of the EU law

*d3*d1 & d3*d2* = interaction variables between time dummy and separation dummies

δ_1 & δ_2 = coefficients of interaction variables that can further be interpreted as:

$$\hat{\delta_1} = (\bar{y}_{B,2} - \bar{y}_{B,1}) - (\bar{y}_{A,2} - \bar{y}_{A,1}) \quad (2)$$

The two regression models and corresponding variables are presented and explained further in Table 3 and Table 4.

5.2 Results

To investigate whether the law on non-financial reporting had an effect, an initial graph (see Figure 2) was made looking at the probability of reporting amongst companies in the EU. The results show a large increase in the probability of reporting non-financial information for large companies between years 2017 (34%) and 2018 (49%) as a result of the law.

To observe whether the reporting of non-financial information had any effect on financial performance, average daily stock prices was plotted for small companies, large companies that have reported on ESG issues, and large companies that have not reported. The graph (see Figure 3) shows an increase in stock prices for companies that have reported on non-financial information during most of 2018 and again after the start of 2019.

After having observed a higher average stock prices for the companies that have reported after the implementation of the law, the difference-in-differences regression was performed to investigate whether this was statistically significant. Looking at the interaction variables from model 1 (see Table 5), there is a greater average gain for the companies that have reported from the time that the law was implemented. This means that the companies that have reported experienced a higher level in stock prices since the implementation of the law.

Once establishing that reporting on ESG has had a positive effect on financial performance, a deeper dive was made into those companies that did report and whether the ESG score they received had any effect on financial performance. The graph (see figure 4) shows a similar split after the introduction of the law where those companies with high ESG scores experience an increase while those companies with low ESG scores experience a decrease. Towards the end of 2018, this split becomes significantly large and the companies with high ESG scores experience consistently higher average stock prices compared to those with low scores.

As previously, a difference-in-difference regression was applied here to see whether the split in stock prices was statistically significant. Looking at the results (see table 6), it is visible that the interaction variable between high ESG scores and time is almost twice as large compared to the interaction between low scores and time. This means that having high ESG scores yields an overall higher level in stock prices after the implementation of the law.

6 Discussion

6.1 Relationship Between ESG and Financial Performance

The results from Figure 2 show a jump in the probability of reporting non-financial information after the implementation of the law. This shows that although more companies still need to comply with the law, the law had an effect on the number of companies reporting.

This is in accordance with what the European Commission expected before implementing the law and establishes a good foundation for future work towards a more sustainable Europe.

Looking at the first graph (see Figure 3), it is visible that having reported yields an overall higher level of average stock prices compared to not having reported. Since the split in stock prices is evident during 2018 and onwards, it cannot be contributed to anything other than ESG reporting since there is no other event around this time that could have caused a similar effect. When testing whether the increase in stock prices for those companies that reported was statistically significant using the DID method, the results (see Table 5) confirm what the graph was already showing. With the interaction variable esgyes_time being almost ten times larger than esgno_time it can be concluded that having reported on ESG issues yields and overall greater average gain in stock prices from the time of the law implementation.

When analysing the second graph (see Figure 4), to see whether receiving a high ESG score results in a greater yield in average stock prices, there is a similar split between companies as seen in Figure 3. Even more evident in this case, the companies with high ESG scores experience a greater overall level in stock prices compared to those with low ESG scores. All companies experience fairly similar trends prior to 2018 and then show a clear split, which again cannot be contributed to anything other than the law implementation.

Since both esgyes_time and esghigh_time were statistically significant and larger than esgno_time and esglow_time respectively, the data can conclude that ESG reporting and ESG scores have an effect on the financial performance of public companies in the EU.

Regarding the assumption of similar trends before the implementation of the EU law, the scenarios looks different in Figure 3 and Figure 4. Looking at Figure 3, we can see that while the red line (have reported) is below the blue line (have not reported), the companies that have reported seem to increase faster in financial performance prior to the law. Hence, the two

company groups do not show similar trends. However, looking at Figure 4 with only companies that have reported, the two lines follow a similar trend before the implementation of the law. Ultimately, Figure 4 provides the most convincing result that ESG scores and ESG reporting has a positive effect on financial performance of EU companies.

6.3.2 Comparison to Previous Studies

The results from previous studies in the field have generated a variety of results, with the majority finding a non-negative or positive relationship between CSR and financial performance (Friede, Busch, and Bassen, 2015). As was discussed above, this paper managed to produce similar results. There are however some limitations to this study that will be discussed in the next section.

Comparing to the study made by Lo and Sheu (2007), investigating whether CSR could be a value adding strategy for US companies, the results coincide. Their study found a positive relationship between Tobin's *q* and corporate sustainability. Even though there are some factors that differ between the papers, mainly the origin of the companies and the variables used, this paper too found a positive relationship between CSR and financial performance.

Looking at the results from the study by McWilliams and Siegel (2000), they were not able to conclude that CSR has a positive effect on financial performance. In using their regression model that was supposed to be better constructed than any previous attempts, they only managed to find a neutral relationship between CSR and financial performance. While their results differ from the results obtained in this study, there are a variety of factors as to why, mainly the fact that the regression methods and samples highly differ.

In comparing this study to previous student theses that have been written on the topic, the results are different. When Afrooz & Kruusman (2019) looked at the stock price jumps of Nordic companies in relation to ESG scores, they found no significant relationship. Similarly,

Ahklo & Lind (2019) found no significant relationship between ESG scores and financial performance, measured through ROA, Tobin's *q*, and yearly stock returns, when investigating 80 Nordic companies. Andersson & Rönning (2020) did however find a positive relationship between ESG and stock valuation, but this was only true in those cases where the variable was significant. A major factor that differs between all four studies is the measurements of financial performance, which could have an impact on the results obtained.

6.3.3 Critical Review

Although the collection of data has been consistent throughout the conduction of this paper, the results obtained should be viewed while considering the limitations to the study.

Firstly, since the data was collected from one specific database, the Thomson Reuters Eikon database, the data is restricted and relies solely on the information in the database. According to the European Commission, around 6000 European companies were to be affected by the implementation of the law. The Eikon database did however not have a record of this many companies and it is therefore possible that the collected sample was incomplete. Secondly, the database was lacking data information for several companies which had to be excluded from the sample. Since the list of companies is collected from the Eikon database while the data itself is collected from the Thomson Reuters DataStream, there is a possibility that the overlap between the two databases is not perfect. And while the data is updated in real time according to press releases, reports etc. provided by the companies, Thomson Reuters may not have access to data information from every company in their database. a higher number of companies and better overlap between the databases could have yielded different results.

Another factor that needs to be taken into consideration is the differences between the requirements in the EU law and the national legislation of the EU member states. While there was no possibility to take these differences into consideration, this is something that could

have had an effect on the outcome of the results. Given more time for additional research, it could have been possible to investigate the effects of the EU law in each member state. Doing this might have yielded a different results other those obtained.

Lastly, since the implementation of the law did not result in all selected companies reporting, there could be a bias in terms of which companies did report. It could be argued that those companies that have reported (company group 3) actually chose to do so not solely based on the obligations of the law but based on other factors such as a previously good financial performance. This could be a reason why in figure 3, the companies that have reported were already performing better before the implementation of the law. However, the further investigation of group 3 in figure 4 helps overcome this potential problem.

7 Conclusion

7.1 Answering the Research Questions

RQ1: Is there a visible change in financial performance for public EU companies as a result of the implementation of the EU-law on non-financial reporting?

What can be seen from the results obtained is that there is a visible jump in the probability of reporting on non-financial performance for companies with more than 500 employees after the implementation of the EU law. Looking at Figure 3, there is a visible increase in stock prices for the companies that have reported compared to those that have not. Furthermore, looking at Figure 4, there is a clear split in stock prices between the companies receiving high ESG scores and those receiving low ESG scores.

RQ2: Is there a significant relationship between ESG reporting and ESG scores, and the financial performance of public EU companies after the implementation of the law on non-financial reporting?

Along with the increase in the probability of reporting on non-financial information after the implementation of the law, there is also a statistically significantly higher average stock price for those companies that have reported on ESG issues compared to those that have not after the implementation of the law on non-financial reporting. Furthermore, there is also a statistically significant increase in stock prices after the implementation of the law for those companies with high ESG scores compared to those with low ESG scores.

This concludes a positive relationship between ESG reporting and ESG scores, and financial performance of public companies in the EU after the implementation of the EU law on non-financial reporting.

7.2 Future Research

The main suggestion for future research is to use a different database in order to access more comprehensive data regarding market capitalization and ESG scores. Since it is not possible to know how the database has selected their companies, creating an unknown sample selection bias that might have affected the outcome of the results. Including more companies in the study and having access to more data could improve the validity of the results. This should also involve investigating each member state separately to see which other companies were affected by the implementation of the law, in order to create a larger primary sample group. Additionally, investigating each member state separately and changing the 500-employee threshold depending on their national legislation might yield more accurate results.

Reference list:

Afrooz, Z. & Kruusman, A., (2019). *The effect of the ESG scores on stock price jumps* [Master Thesis]. Umeå School of Business, Economics & Statistics. http://www.diva-portal.org/smash/get/diva2:1325390/FULLTEXT01.pdf

Ahklo, Y. & Lind, C. (2019). *E, S or G? A study of ESG score and financial performance* [Master Thesis]. KTH Industrial Engineering and Management. http://www.diva-portal.org/smash/get/diva2:1295223/FULLTEXT01.pdf

Albuquerque, R., Koskinen, Y. & Zhang, C. (2018) "Corporate Social Responsibility and Firm Risk: Theory and Empirical Evidence". *Management Science*, pp. 1-19

Andersson, S. & Rönning, J. (2020). *ESG-score and valuation of stocks - A study about the effect of ESG on a stock's valuation* [Master Thesis]. Karlstad Business School. http://www.diva-portal.org/smash/get/diva2:1452576/FULLTEXT01.pdf

Bauer, R. & Hann, D. (2010). "Corporate Environmental Management and Credit Risk". *SSRN Electronic Journal*. 10.2139/ssrn.1660470.

Bowen, H., R. (1953). *Social Responsibilities of the Businessman*. New York: Harper & Row.

Carroll, A. B. (1999). "Corporate social responsibility: Evolution of a definitional construct". *Business & Society*, 38(3), 268-295. doi:10.1177/000765039903800303

Danish Annual Reports Act "Årsregnskabsloven", ch.99-par.2. https://danskelove.dk/%C3%A5rsregnskabsloven

El Ghoul, S., Guedhami, O., Kwok, C. C. Y. & Mishra D. R. (2011). "Does corporate social responsibility affect the cost of capital?" *Journal of Banking and Finance*, 35(9), pp. 2388–2406

European Commission. (n.d. a). "A European Green Deal – Striving to be the first climate-neutral continent". Accessed November 10. https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

European Commission. (n.d. b). "Non-financial reporting". Accessed October 9. https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/non-financial-reporting_en

European Commission. (n.d. c). " Types of EU law". Accessed October 11. https://ec.europa.eu/info/law/law-making-process/types-eu-law_en

European Commission. (2001). "Green paper - Promoting a European framework for corporate social responsibility. COM/2001/0366 final". Accessed November 12. https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52001DC0366&from=SV

European Commission. (2009). *European Competitiveness Report 2008*. Luxembourg: Office for Official Publications of the European Communities. DOI 10.2769 / 65417

European Commission. (2011). "A renewed EU strategy 2011-14 for Corporate Social Responsibility (Communication to the European Parliament, Council, European Economic and Social Committee and Committee of the Regions)". Brussels. Accessed October 7. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011DC0681&from=EN

European Commission. (2013). *COMMISSION STAFF WORKING DOCUMENT IMPACT ASSESSMENT Accompanying the document Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Council Directives 78/660/EEC and 83/349/EEC as regards disclosure of non-financial and diversity information by certain large companies and groups*. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52013SC0127

European Commission. (2017). "Communication from the Commission — Guidelines on non-financial reporting (methodology for reporting non-financial information)". C/2017/4234. https://eur-lex.europa.eu/legal-content/GA/ALL/?uri=CELEX:52017XC0705(01)#ntr3-C_2017215EN.01000101-E0003

European Commission. (2019). "A Sustainable Europe by 2030". Accessed October 6. https://ec.europa.eu/commission/publications/reflection-paper-towards-sustainable-europe-2030_en

European Parliament & Council of the European Union. (2013). "Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Council Directives 78/660/EEC and 83/349/EEC". https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32013L0034&from=sv

European Parliament & Council of the European Union. (2014). "Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups". https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32014L0095

Friede, G., Busch, T., & Bassen, A. (2015). "ESG and financial performance: aggregated evidence from more than 2000 empirical studies". In: *Journal of Sustainable Finance & Investment* 5:4, pp. 210–233.

Gates, S. (2013). "Proactive investor relations: How corporations respond to pressures from social responsibility investors". In *Institutional Investors' Power to Change Corporate Behavior: International Perspectives.* (pp.397-423)

Global Sustainable Investment Alliance. (2018). "2018 Global Sustainable Investment Review". Accessed October 14. http://www.gsi-alliance.org/wp-content/uploads/2019/03/GSIR_Review2018.3.28.pdf

International Organization for Standardization. (2018). "Discovering ISO 26000 – Guidance on social responsibility". ISBN 978-92-67-10973-2. Accessed October 7. https://www.iso.org/files/live/sites/isoorg/files/store/en/PUB100258.pdf

Ioannou, I. & Serafeim, G. (2013). "The Impact of Corporate Social Responsibility on Investment Recommendations". *Academy of Management Proceedings*. 2010. 10.2139/ssrn.1507874.

Lo, S-F. and Sheu, H-J. (2007). "Is Corporate Sustainability a Value Increasing Strategy for Business?" In: *Corporate Governance: An International Review* 15, pp. 345–358.

McWilliams, A., & Siegel, D. (2000). "Corporate social responsibility and financial performance: Correlation or misspecification?" *Strategic Management Journal*, 21(5), 603-609. doi: 10.1002/(SICI)1097-0266(200005)21:53.0.CO;2-3

Morningstar. (2019). "Morningstar Sustainability Rating – Methodology". Accessed November 16. https://www.morningstar.com/company/esg-investing

Nasdaq. (2019). "Nasdaq Launches Sustainable Bond Network". [Company Newsroom]. Accessed November 16. https://www.nasdaq.com/press-release/nasdaq-launches-sustainable-bond-network-2019-12-10

Nasdaq. (n.d.). "Listing of Sustainable Bonds". Accessed November 16. https://www.nasdaq.com/solutions/listing-of-sustainable-bonds

Porter, M. & Kramer, M. (2007). "Strategy and Society: The Link Between Competitive Advantage and Corporate Social Responsibility". *Harvard business review*. 84. 78-92, 163.

Principles for Responsible Investments (PRI). (n.d.). "An introduction to responsible investment". Accessed November 10. https://www.unpri.org/an-introduction-to-responsible-investment/what-is-responsible-investment/4780.article

Principles for Responsible Investments (PRI). (2020). *PRI 2020 Brochure*. https://www.unpri.org/download?ac=10948

Robeco. (2020). "Country Sustainability Ranking". Accessed November 16. https://www.robeco.com/en/key-strengths/sustainable-investing/country-ranking/

S&P Global. (n.d.). "DJSI Index Family". Accessed November 16. https://www.spglobal.com/esg/csa/indices/djsi-index-family

Steurer, R., Martinuzzi, A., Margula, S. (2012). "Public policies on CSR in Europe: themes, instruments, and regional differences". *Corporate Social Responsibility and Environmental Management*. 19. 10.1002/csr.264.

Swedish Annual Reports Act "Årsredovisningslag 1995:1554", ch.6-par.10. https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/arsredovisningslag-19951554_sfs-1995-1554

Thomson Reuters Eikon. (2017). "Thomson Reuters ESG Scores". https://www.esade.edu/itemsweb/biblioteca/bbdd/inbbdd/archivos/Thomson_Reuters_ESG_Scores.pdf

United Nations (UN). (2015). *Paris Agreement*. https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement

United Nations Global Compact. (n.d a). "Our Mission". Accessed October 7. https://www.unglobalcompact.org/what-is-gc/mission

United Nations Global Compact. (n.d b). "The SDGs Explained for Business". Accessed October 7. https://www.unglobalcompact.org/sdgs/about

Appendices

Appendix 1 – Tables

Table 1. Sample Description

Total number of companies present in database	3220
Companies lacking data	55
Extreme outliers	7
Remaining companies	3158
Group 1: Companies with ≥500 employees	1753
Group 2: Companies with <500 employees	1405
Group 3: Companies from Group 1 that have reported on ESG issues	870
Group 4: Companies from Group 1 that have not reported on ESG issues	883
Group 5: Companies from Group 3 with high ESG scores	434
Group 6: Companies from Group 3 with low ESG scores	436

Table 2. List of Variables

Abbreviation	Definition
lstockprice_norm (Y)	Normalized logarithmic average daily stock prices
esgyes	Dummy variable for having ≥500 employees and reporting on ESG
esgno	Dummy variable for having ≥500 employees and not reporting on ESG
esghigh	Dummy variable for having ≥500 employees and a high ESG score
esglow	Dummy variable for having ≥500 employees and a low ESG score
time	Dummy variable for the implementation of the EU law
esgyes_time	Interaction variable between esgyes and time
esgno_time	Interaction variable between esgno and time
esghigh_time	Interaction variable between esghigh and time
esglow_time	Interaction variable between esglow and time

Table 3. Regression Model 1

$$y = \beta_0 + \beta_1 esgyes + \beta_2 esgno + \delta_0 time + \delta_1 esgyes\_time + \delta_2 esgno\_time$$

Variable name	Explanation
y	Normalized logarithmic average daily stock prices
esgyes	Dummy variable for having ≥500 employees and reporting on ESG
esgno	Dummy variable for having ≥500 employees and not reporting on ESG
time	Dummy variable for the implementation of the EU law
esgyes_time	Interaction variable between esgyes and time
esgno_time	Interaction variable between esgno and time

Comment:
This regression model compares the average gain after the implementation of the EU law for the large companies that have reported on ESG issues and the large companies that have not reported.

Table 4. Regression Model 2

$$y = \beta_0 + \beta_1 esghigh + \beta_2 esglow + \delta_0 time + \delta_1 esghigh * time + \delta_2 esglow * time$$

Variable name	Explanation
y	Normalized logarithmic average daily stock prices
esghigh	Dummy variable for having ≥500 employees and a high ESG score
esglow	Dummy variable for having ≥500 employees and a low ESG score
time	Dummy variable for the implementation of the EU law
esghigh_time	Interaction variable between esghigh and time
esglow_time	Interaction variable between esglow and time

Comment:
This regression model compares the average gain after the implementation of the EU law for the large companies that have high ESG scores and the large companies that have low ESG scores.

Table 5. Results from Regression 1

Variables	Coefficients	Standard Error
constant	0.9810	0.0008
esgyes	-0.0219***	0.0010
esgno	-0.0010	0.0009
time	0.0024***	0.0009
esgyes*time	0.0335***	0.0012
esgno*time	0.0036***	0.0011
R^2	0.3472	
F-statistic	426.38	
Prob > F	0.0000	
N	3912	

*** p-value < 0.01

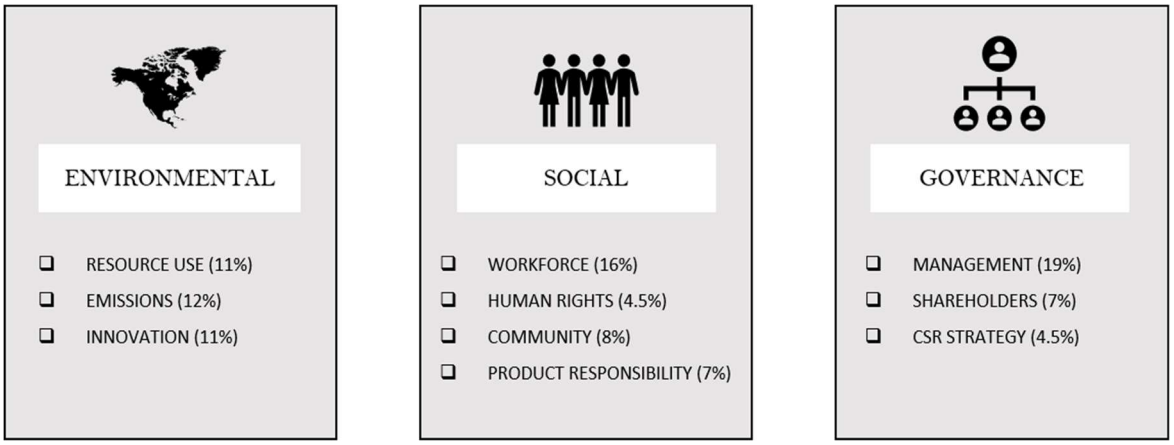
Table 6. Results from Regression 2

Variables	Coefficients	Standard error
constant	0.9808	0.0008
esghigh	-0.0237***	0.0011
esglow	-0.0187***	0.0010
time	0.0031***	0.0009
esghigh*time	0.0431***	0.0013
esglow*time	0.0238***	0.0012
R^2	0.4420	
F-statistic	869.65	
Prob > F	0.0000	
N	3912	

*** p-value < 0.01

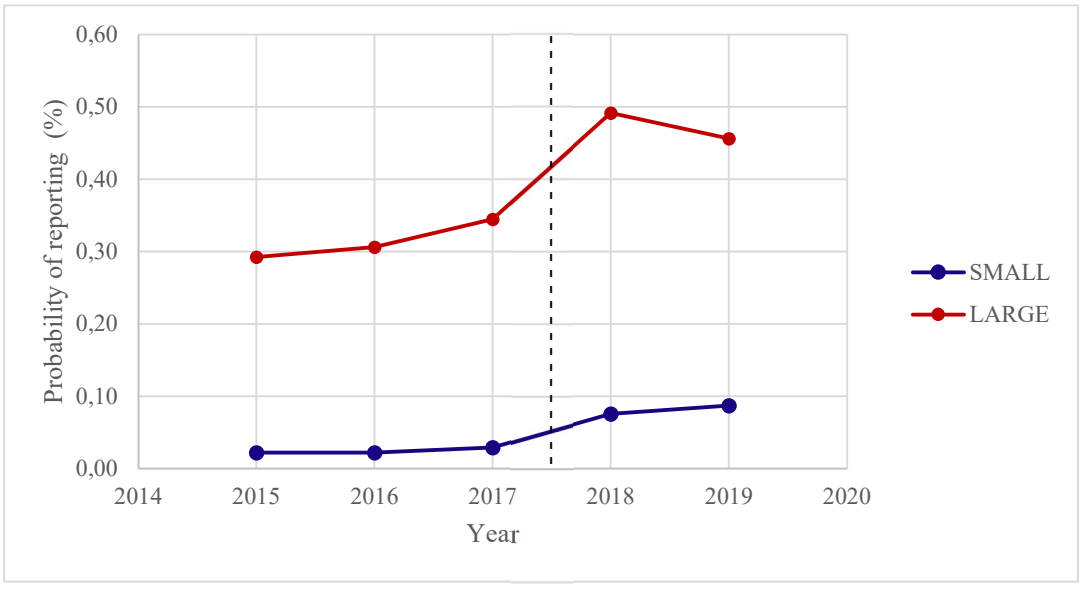
Appendix 2 – Figures

Figure 1. ESG pillar categories and weights (Thomson Reuters, 2017)



Comment:
The ESG score made up of 3 pillars and 10 subcategories where each subcategory represents a certain percentage of the overall score.

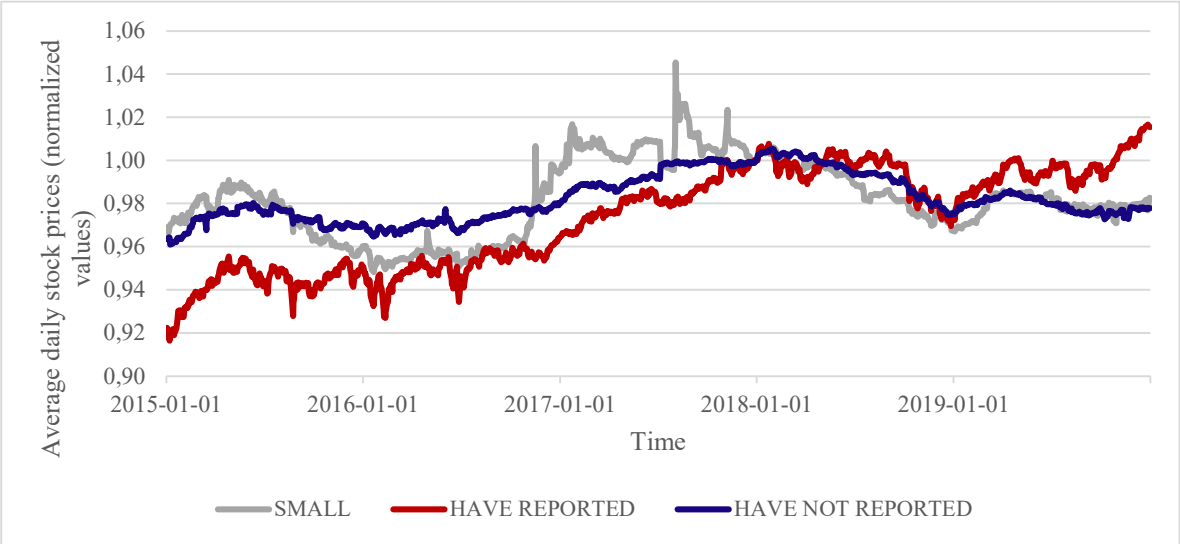
Figure 2. Probability of Reporting Non-financial Information Amongst EU Companies



Comment:
The graph plots the probability for small and large companies in the EU to report on non-financial information. The blue line shows all companies with less than 500 employees and the red line shows all companies with 500 or more employees. The vertical line shows when the EU law on non-financial reporting was implemented.

Figure 3. Average daily stock prices for small and large companies in the EU

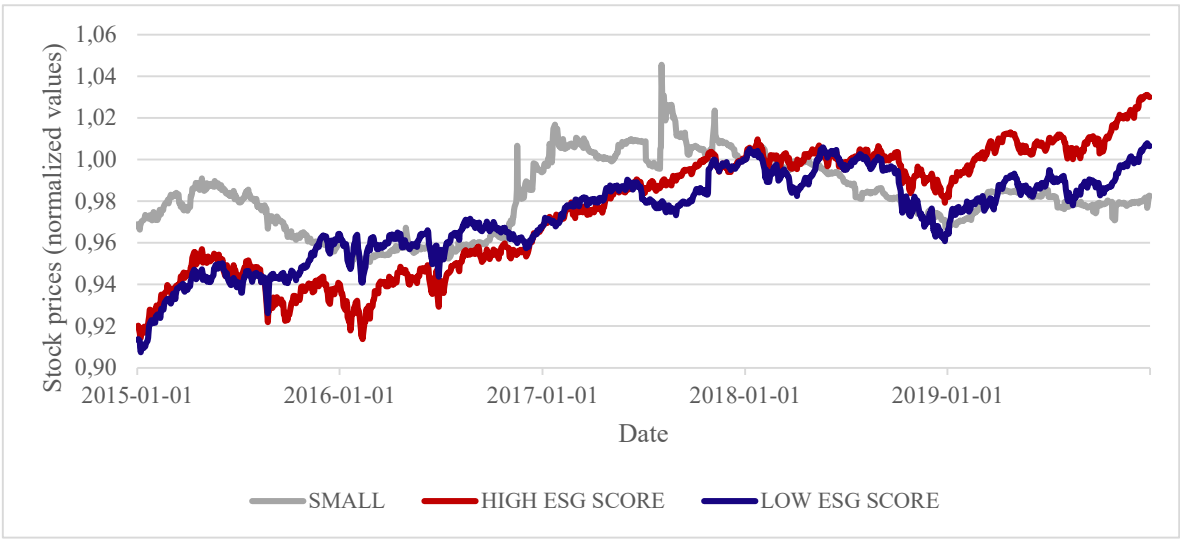
Variables	Lstockprice_norm, time



Comment:
The graph plots average stock prices for companies in the EU from 2015 to 2019. The grey line plots small companies, the blue line plots large companies that have reported and the red line plots large companies that have not reported. The natural logarithm is used to remove large changes between companies and the datapoints have been normalized to concentrate the data around when the law was implemented.

Figure 4. Average stock prices for companies in the EU with high vs low ESG scores

Variables	Lstockprice_norm, time



Comment:
The graph plots the average stock prices for companies in the EU from 2015 to 2019. The grey line plots small companies, the blue line plots large companies with high ESG scores and the red line plots large companies with low ESG scores. The natural logarithm is used to remove large changes between companies and the datapoints have been normalized to concentrate the data around when the law was implemented.